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United States  
Department of  
Agriculture

Soil  
Conservation  
Service

Montana  
Agricultural  
Experiment  
Station

Bozeman,  
Montana

# MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow  
Forecasts as of  
April 1, 1984

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
SNOW SURVEY UNIT  
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## March snowfall improves

Heavy snowfall during March throughout southwestern, central and west-central Montana improved mountain snowpack.



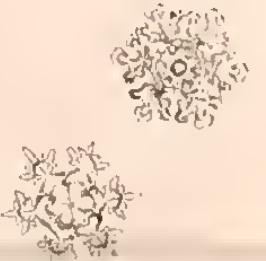
However, the northwest corner of the State and areas along the Continental Divide from Rogers Pass into Canada did not receive this heavy snowfall and the winter's accumulation of snow is still only 50 to 60 percent of average.

Southwestern Montana continues to receive its share of the snowstorms and has near average or a little above average snowpack.

The headwaters of the Yellowstone River have received some snow but snowpack remains below average.

Most mountain locations in Montana received 3 to 5 inches of moisture during March. Some of the heavier snowfall areas recorded 6 to 8 inches of additional moisture added to the snowpacks.

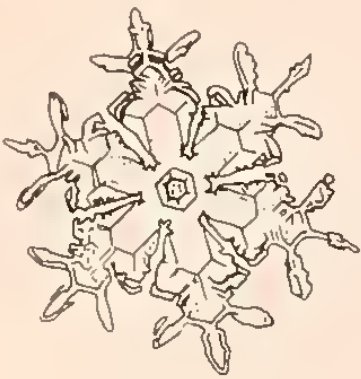
Snow at lower elevations and on south-facing slopes is beginning to melt. As temperatures increase, the snowline will begin receding up the mountain.



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The Montana Water Supply Outlook is a publication of the U.S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.

The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, Room 443, Federal Building, 10 East Babcock, Bozeman, Montana.

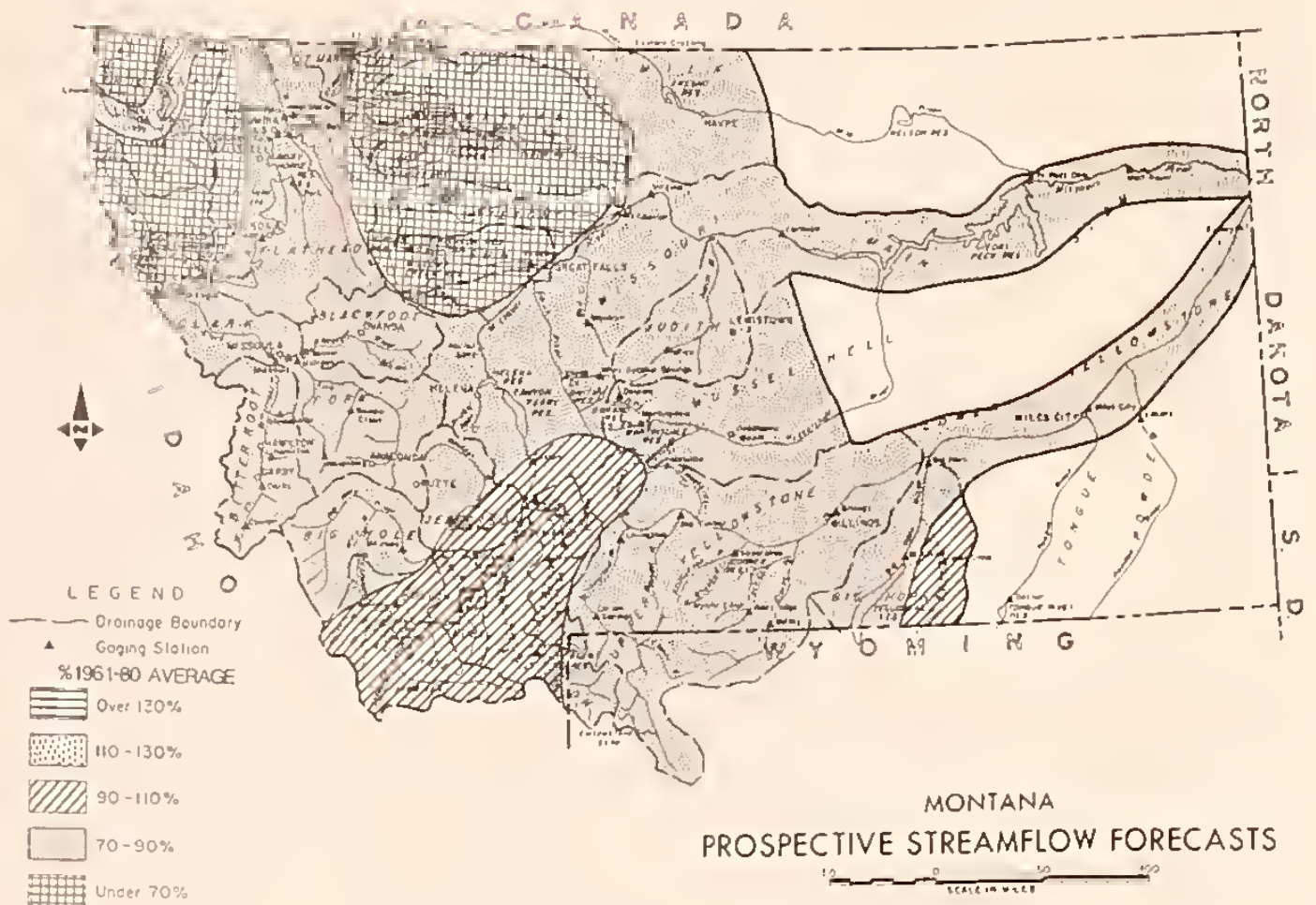


## Statewide water shortages possible

Spring and summer streamflows are forecast to be well below average for the majority of streams and rivers in the State.

Some areas in northwest and north-central Montana could have near record low runoff if spring rains continue to follow the below average trends of this winter's snowfall. A part of the Missouri River headwaters is the only area where runoff is expected to be near average.

Shortages in irrigation water supplies could begin developing much earlier than usual and could be quite severe in low-runoff areas without stored waters.



MONTANA  
PROSPECTIVE STREAMFLOW FORECASTS  
SCALE IN MILES



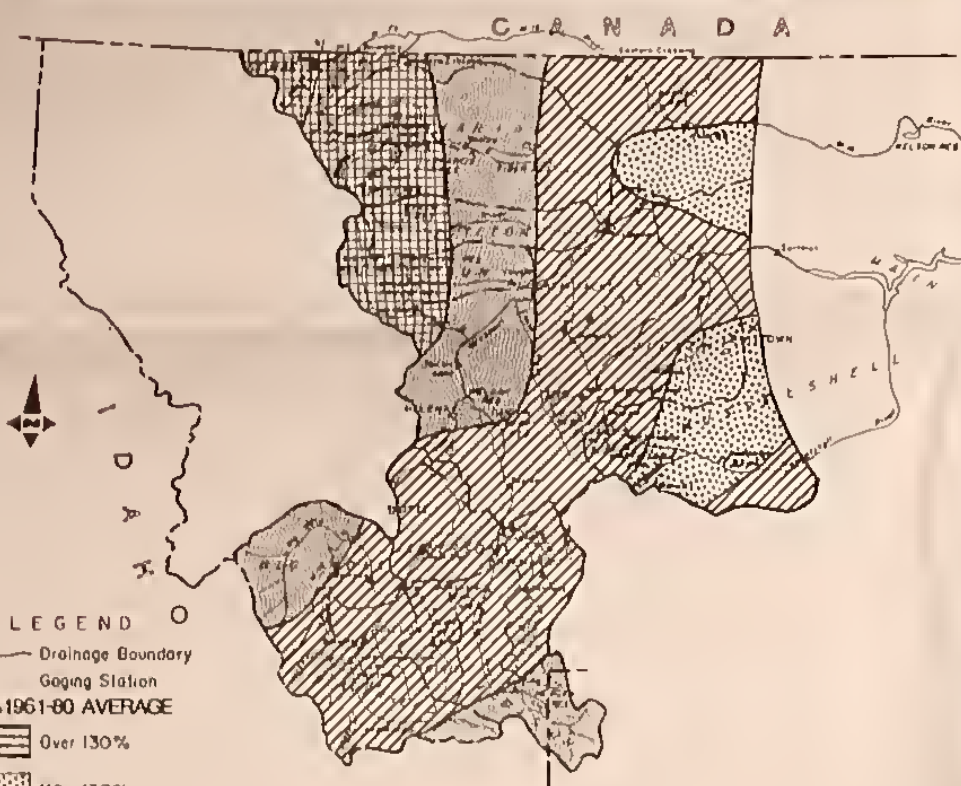
# Missouri River & Hudson Bay Drainages

## STREAMFLOW FORECASTS

| BASIN, STREAM NAME & FORECAST POINT            | THIS YEAR               |                       |                        |                       | PAST RECORD            |                       |                        |                       |
|--|-------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|
|  | FORECAST                |                       | PAST RECORD            |                       | FORECAST               |                       | PAST RECORD            |                       |
|  | Thousand<br>Cubic Feet  | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average |
| PERIOD   | April - September       |                       |                        |                       | April - July           |                       |                        |                       |
| RED ROCK RIVER near Montana (1)                | 113                     | 110                   | 186                    | 103                   | 106                    | 110                   | 159                    | 96.3                  |
| BEAVERHEAD RIVER near Grant (2)                | 170                     | 108                   | 250                    | 137                   | 146                    | 107                   | 197                    | 137                   |
| BEAVERHEAD RIVER at Harristown (2)             | 212                     | 101                   |                        | 209                   | 186                    | 103                   |                        | 180                   |
| RUBY RIVER near Alder                          | 109                     | 108                   |                        | 101                   | 92.0                   | 109                   |                        | 84.6                  |
| BIG HOLE RIVER near Melrose                    | 640                     | 84                    |                        | 760                   | 590                    | 84                    |                        | 698                   |
| BOULDER RIVER near Boulder                     | Streamflow measurements |                       |                        |                       | 98.7                   | discontinued          |                        | 87.8                  |
| WILLOW CREEK near Harrison                     | 20.5                    | 102                   |                        | 20.0                  | 18.5                   | 104                   |                        | 17.8                  |
| MADISON RIVER near Grayling (3)                | 452                     | 91                    | 532                    | 496                   | 355                    | 91                    | 408                    | 388                   |
| MADISON RIVER near McAllister (4)              | 843                     | 99                    | 947                    | 848                   | 671                    | 100                   | 749                    | 672                   |
| GALLATIN RIVER near Gateway                    | 530                     | 97                    | 534                    | 545                   | 455                    | 98                    | 451                    | 464                   |
| INFLOW MIDDLE CREEK RESERVOIR near Bozeman (5) | 27.3                    | 97                    | 26.3                   | 28.6                  | 23.6                   | 97                    | 22.5                   | 24.7                  |
| HYALITE CREEK near Bozeman (6)                 | 43.0                    | 96                    |                        | 44.8                  | 37.2                   | 96                    |                        | 38.7                  |
| GALLATIN RIVER at Logan                        | 575                     | 94                    |                        | 611                   | 498                    | 95                    |                        | 523                   |
| MISSOURI RIVER at Toston (7)                   | 2390                    | 94                    | 2885                   | 2,545                 | 2024                   | 92                    | 2385                   | 2,196                 |
| SHEEP CREEK near White Sulphur Springs         | 19.2                    | 88                    | 16.8                   | 21.8                  | 16.7                   | 88                    | 13.0                   | 19.0                  |
| SUN RIVER at Gibson Dam (8)                    | 330                     | 58                    | 349                    | 570                   | 300                    | 57                    | 304                    | 522                   |
| BELT CREEK near Monarch                        | 121                     | 90                    |                        | 134                   | 110                    | 89                    |                        | 123                   |
| MISSOURI RIVER at Fort Benton (9)              | 3392                    | 85                    |                        | 3,980                 | 2880                   | 85                    |                        | 3,468                 |
| TWO MEDICINE CREEK near Browning (10)          | 171                     | 69                    |                        | 248                   | 159                    | 68                    |                        | 235                   |
| BADGER CREEK near Browning                     | 88.0                    | 68                    |                        | 130                   | 76.0                   | 67                    |                        | 113                   |
| INFLOW SWIFT RESERVOIR near Dupuyer            | 60.0                    | 69                    | 51.7                   | 86.7                  | 51.0                   | 68                    | 41.9                   | 74.7                  |
| CUT BANK CREEK at Cut Bank                     | 75.0                    | 66                    |                        | 114                   | 69.0                   | 64                    |                        | 108                   |
| MARIAS RIVER near Shelby                       | 325                     | 60                    | 247                    | 542                   | 300                    | 58                    | 232                    | 518                   |
| MISSOURI RIVER at Virgelle (11)                | 3729                    | 82                    |                        | 4,570                 | 3300                   | 82                    |                        | 4,030                 |
| MISSOURI RIVER near Landusky (11)              | 4130                    | 83                    |                        | 4,980                 | 3635                   | 83                    |                        | 4,383                 |
| NORTH FORK MUSSELSHELL RIVER near Delpine      | 5.5                     | 86                    |                        | 6.4                   | 4.6                    | 85                    |                        | 5.4                   |
| SOUTH FORK MUSSELSHELL RIVER above Martindale  | 50.2                    | 80                    |                        | 62.8                  | 48.0                   | 81                    |                        | 58.9                  |
| MISSOURI RIVER below Fort Peck Dam (11)        | 4025                    | 81                    |                        | 4,961                 | 3585                   | 81                    |                        | 4,428                 |
| MILK RIVER at Eastern Crossing                 | 232                     | 94                    |                        | 248                   |                        |                       |                        |                       |
| MILK RIVER at Eastern Crossing (12)            | 65.4                    | 80                    |                        | 81.7                  |                        |                       |                        |                       |
| INFLOW LAKE SAKAKAWA, ND (11)                  | 10200                   | 80                    |                        | 12,755                | 9290                   | 80                    |                        | 12,239                |
| SASKATCHEWAN RIVER BASIN                       |                         |                       |                        |                       |                        |                       |                        |                       |
| SWIFT CURRENT CREEK at Sherburne (13)          | 102                     | 80                    | 100                    | 128                   | 88.0                   | 79                    | 87.9                   | 112                   |
| ST. MARY'S RIVER near Babb (13)                | 375                     | 77                    |                        | 487                   | 315                    | 76                    |                        | 416                   |

- (1) Adjusted for storage in Lima Reservoir.
- (2) Adjusted for storage in Lima and Clark Canyon Reservoirs.
- (3) Adjusted for storage in Hebgen Lake.
- (4) Adjusted for storage in Hebgen Lake and Ennis Lake.
- (5) Sum of West Fork Hyalite Creek and East Fork Hyalite Creek above the Reservoir.
- (6) Adjusted for storage in Middle Creek Reservoir.
- (7) Adjusted for storage in Lima, Hebgen, Ennis & Clark Canyon Reservoirs.
- (8) Adjusted for storage in Gibson Reservoir & diversions.
- (9) Adjusted for storage in Lima, Clark Canyon, Hebgen, Ennis, Gibson, Pishkun, Willow Creek & Canyon Ferry Reservoirs.
- (10) Adjusted for storage in Two Medicine Reservoir & diversions in Two Medicine Canal.
- (11) Adjusted for all upstream reservoirs.
- (12) Flow at Eastern Crossing minus St. Mary's Canal.
- (13) Adjusted for storage in Lake Sherburne.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE



MISSOURI RIVER & HUDSON BAY DRAINAGES  
MONTANA  
MOUNTAIN SNOW WATER EQUIVALENT

| WATER SUPPLY OUTLOOK   |               |             |
|--|---------------|-------------|
| Expressed as "Poor, Fair, Average, Excellent" with respect to Usual Supply |               |             |
| STREAM or AREA   | Spring Season | Late Season |
| Beaverhead   | Avg           | Avg         |
| Ruby   | Avg           | Avg         |
| Big Hole   | Fair          | Fair        |
| Boulder  | Fair          | Poor        |
| Jefferson  | Fair          | Poor        |
| Madison  | Avg           | Avg         |
| Gallatin   | Avg           | Avg         |
| West-Side Missouri   | Fair          | Poor        |
| Smith-Belt   | Fair          | Fair        |
| Sun  | Poor          | Poor        |
| Teton  | Poor          | Poor        |
| Marias   | Poor          | Poor        |
| Judith   | Fair          | Fair        |
| Musshells  | Fair          | Fair        |
| Milk   | Poor          | Poor        |
| Bear Paws  | Avg           | Avg         |
| St. Mary's   | Fair          | Poor        |

Most drainages  
below average

Runoff forecasts have increased slightly on most streams. The Beaverhead, Ruby, Madison and Gallatin Rivers are expected to have runoff near or a little above average. However, all other drainages are forecast to have below to well below average runoff.

Mid- to late season shortages of irrigation water are expected on the Big Hole and Boulder Rivers in the Missouri River headwaters and on all tributaries to the Missouri below Canyon Ferry Reservoir.

If spring rains follow the snowpack trends and are below average, streams in the Milk, Marias, Teton, Sun and Dearborn drainages could produce runoff near the lowest on record.

Irrigators in these areas not having stored water need to be prepared for a greatly reduced water supply.



MOUNTAIN STREAMS ARE GENERALLY FREE OF SNOW AND WILL SOON BE CARRYING SNOWMELT WATER TO DOWNSTREAM AREAS.

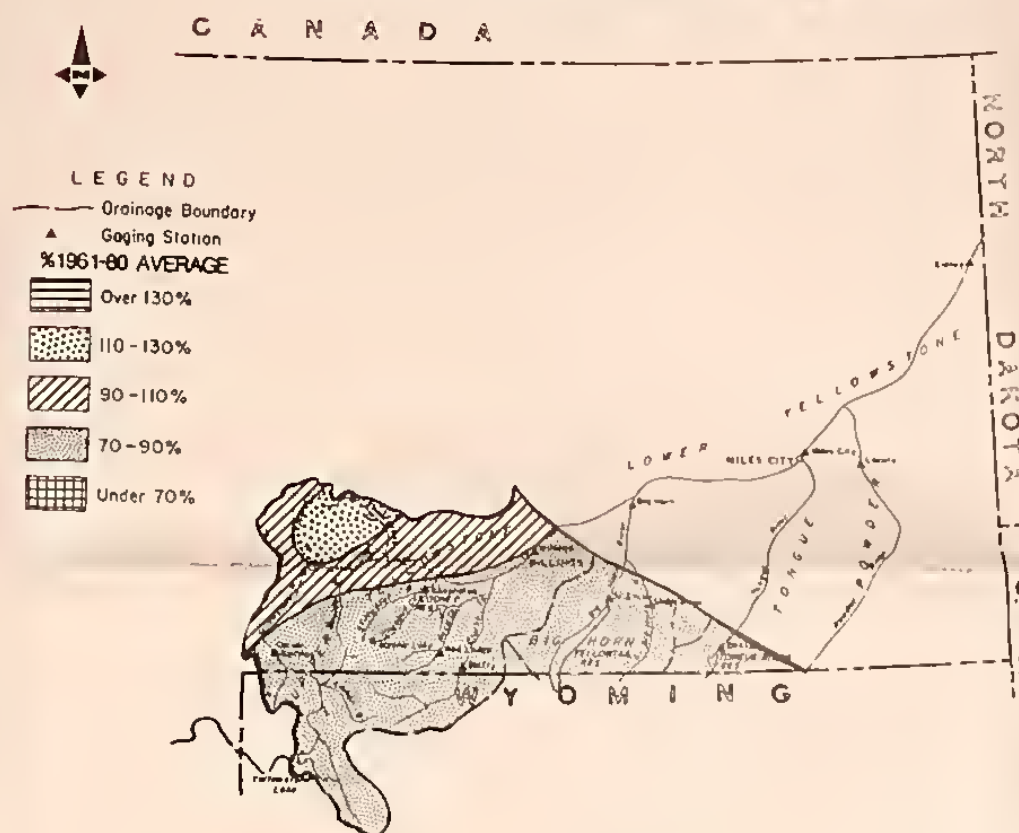
# Yellowstone River Drainage

## STREAMFLOW FORECASTS

| BASIN, STREAM NAME & FORECAST POINT   | THIS YEAR               |                       |                        |                       | PAST RECORD            |                       |                        |                       |
|---------------------------------------|-------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|------------------------|-----------------------|
|                                       | FORECAST                |                       | PAST RECORD            |                       | FORECAST               |                       | PAST RECORD            |                       |
|                                       | Thousand<br>Cubic Feet  | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average | Thousand<br>Cubic Feet | Percent<br>of Average |
| PERIOD                                | April - September       |                       |                        |                       | April - July           |                       |                        |                       |
| YELLOWSTONE RIVER at Corwin Springs   | 1650                    | 81                    | 1725                   | 2,027                 | 1380                   | 82                    | 1397                   | 1,686                 |
| YELLOWSTONE RIVER near Livingston     | 1930                    | 81                    |                        | 2,379                 | 1610                   | 82                    |                        | 1,969                 |
| BOULDER RIVER at Big Timber           | 294                     | 74                    |                        | 398                   | 270                    | 74                    |                        | 366                   |
| STILLWATER near Absarokee (1)         | 500                     | 79                    |                        | 632                   | 415                    | 79                    |                        | 528                   |
| CLARK'S FORK RIVER near Belfry        | 455                     | 72                    |                        | 628                   | 410                    | 73                    |                        | 563                   |
| ROCK CREEK near Red Lodge             | Streamflow measurements |                       |                        |                       | 115                    | discontinued by USGS  |                        | 88.1                  |
| INFLOW COONEY RESERVOIR near Boyd (2) | 50.0                    | 83                    |                        | 60.5                  | 41.0                   | 83                    |                        | 49.5                  |
| YELLOWSTONE RIVER at Billings         | 3680                    | 82                    | 3133                   | 4,516                 | 3131                   | 82                    | 3793                   | 3,833                 |
| BIGHORN RIVER near St. Xavier (3)     | 1512                    | 77                    | 2060                   | 1,976                 | 1370                   | 76                    | 1849                   | 1,794                 |
| LITTLE BIGHORN RIVER near Hardin      | 176                     | 97                    |                        | 182                   | 157                    | 97                    |                        | 162                   |
| TONGUE RIVER near Decker              | 258                     | 96                    |                        | 269                   | 235                    | 96                    |                        | 244                   |
| YELLOWSTONE RIVER at Miles City (4)   | 5425                    | 80                    |                        | 6,787                 | 4720                   | 80                    |                        | 5,906                 |
| POWDER RIVER at Moorhead              | 226                     | 86                    |                        | 263                   | 208                    | 86                    |                        | 243                   |
| YELLOWSTONE RIVER near Sidney (5)     | 5930                    | 79                    |                        | 7,518                 | 5170                   | 79                    |                        | 6,544                 |

- (1) Adjusted for storage in Mystic Lake.
- (2) Adjusted for storage in Cooney Reservoir.
- (3) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake, Pilot Butte and Bighorn Reservoirs.
- (4) Adjusted for storage in Bull Lake, Buffalo Bill, Boysen, Pilot Butte, Bighorn and Tongue River Reservoirs.
- (5) Adjusted for reservoirs shown in (4) and diversions into the Lower Yellowstone Canal.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE



YELLOWSTONE RIVER DRAINAGE  
MONTANA  
MOUNTAIN SNOW WATER EQUIVALENT

Snowpack  
improves slightly

Snowpack in the Yellowstone River headwaters, in and near Yellowstone National Park, improved a little with March snowfall.

However, almost all of the Yellowstone River drainage still has below average snowpack. The only areas with better conditions are along the Gallatin Range and Crazy Mountains. These areas have near to a little above average snowpack.

Some melt has occurred at lower elevations and on south-facing slopes.

| SUMMARY of SNOW MEASUREMENTS     |                 |                                      |         |
|----------------------------------|-----------------|--------------------------------------|---------|
| (COMPARISON WITH PREVIOUS YEARS) |                 |                                      |         |
| RIVER BASIN and/or SUB-BASIN     | Number of Gages | THIS YEAR'S SNOW WATER AS PERCENT OF | Average |
| Upper Yellowstone                |                 |                                      |         |
| ab Livingston                    | 20              | 91                                   | 73      |
| Stillwater                       | 10              | 130                                  | 103     |
| Boulder & Stillwater             | 12              | 95                                   | 73      |
| Rock Creek & Clark's Fork        | 17              | 88                                   | 75      |
| Yellowstone (ab Bighorn River)   | 59              | 97                                   | 78      |
| Bighorn/Wyoming                  | 29              | 101                                  | 84      |
| Little Bighorn                   | 3               | 117                                  | 94      |
| Bighorn (Total)                  | 32              | 102                                  | 85      |
| Tongue                           | 9               | 125                                  | 102     |
| Powder                           | 4               | 106                                  | 94      |
| Yellowstone (Total)              | 104             | 101                                  | 82      |

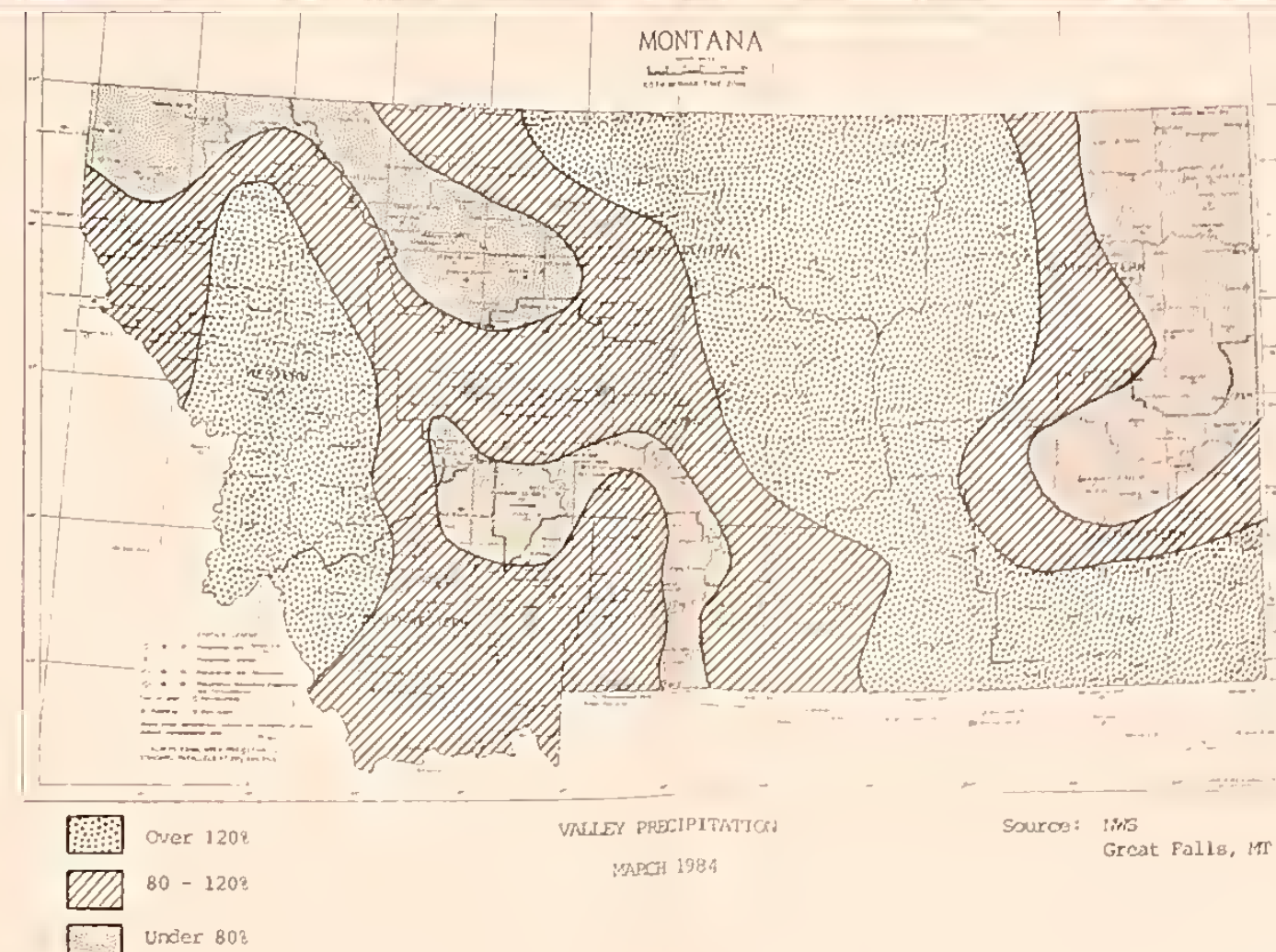
Yellowstone forecasts  
remain low

Spring and summer streamflow forecasts are about the same as those issued last month. Runoff is expected to be 20 to 25 percent less than average on most streams and rivers.

Streams flowing out of the Crazy Mountains should have runoff closer to average.

Mid- to late season irrigation water shortages can be expected on most smaller drainages that flow into the Yellowstone River. Streamflow will begin to drop earlier than usual.

Irrigators with junior water rights should be prepared for a reduced water supply.



VALLEY PRECIPITATION  
MARCH 1984

Sources: NWS  
Great Falls, MT

Missouri snowpack variable

Southwestern and central mountain ranges had good snowfall during March. The area along the Continental Divide from Glacier National Park to Rogers Pass did receive some snow but not enough to overcome earlier deficiencies. Snowpack continues to be 50 to 60 percent of average in this area.

Snowpack is below average in the Upper Big Hole and Madison River drainages, and near or above average in the remainder of the Missouri River headwaters above Three Forks.

Smaller mountain ranges in central Montana generally have above average snowpack.

Some melt has occurred at lower elevations and on south-facing slopes.



# SNOW SURVEY DATA

| SNOW April 1, 1984                |           |                |                     |                        |                        |         |
|-----------------------------------|-----------|----------------|---------------------|------------------------|------------------------|---------|
| DRAINAGE BASIN and/or SNOW COURSE |           |                |                     |                        |                        |         |
| NAME                              | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) | Average |
|                                   |           |                |                     | THIS YEAR              | PAST RECORD            |         |
| ABUNDANCE LAKE                    | 8800      | 3/27           | 61                  | 18.3                   | 20.8                   | 22.0    |
| AMBROSSE                          | 6480      | 3/25           | 43                  | 12.1                   | 11.1                   | 14.1    |
| ARCH FALLS                        | 7350      | 3/26           | 45                  | 11.8                   | 10.8                   | 13.8    |
| ASHLEY DIVIDE                     | 4820      | 3/28           | 15                  | 4.3                    | 4.4                    | 6.1     |
| ASHLEY LAKE                       | 4000      | 3/28           | 14                  | 3.7                    | 4.3                    | 5.6     |
| BADGER PASS                       | 6900      | 4/01           | 73                  | 26.0                   | 29.6                   | 40.4    |
| BADGER PASS PILLOW                | 6900      | 4/01           | SP                  | 21.8                   | 26.1                   | 36.4    |
| BALD EAGLE PEAK                   | 5700      | 3/30           | 107                 | 44.2                   |                        | 62.9    |
| BALD RIDGE                        | 7500      | 3/30           | 54                  | 15.6                   | 10.0                   | 14.2    |
| BAHFIELD MOUNTAIN                 | 5600      | 3/30           | 35                  | 11.4                   | 24.0                   | 24.5    |
| BAHFIELD MOUNTAIN RILL            | 5600      | 4/01           | SP                  | 10.7                   | 20.6                   | 19.8    |
| BARRE CREEK                       | 5500      | 3/27           | 81                  | 29.9                   | 45.5                   | 48.9    |
| BARRE MIDWAY                      | 4600      | 3/27           | 59                  | 20.9                   | 37.6                   | 38.1    |
| BARRE TRAIL                       | 3800      | 3/27           | 3                   | 1.0                    | 3.6                    | 9.5     |
| BARKER LAKES                      | 8250      | 4/04           | 46                  | 13.0                   | 16.4                   | 16.4    |
| BARKER LAKES PILLOW               | 8250      | 4/01           | SP                  | 14.4                   | 17.9                   | 16.9    |
| BASIN CREEK                       | 7180      | 3/29           | 41                  | 8.4                    | 11.4                   | 8.5     |
| BASIN CREEK PILLOW                | 7180      | 4/01           | SP                  | 8.1                    | 9.4                    | 8.1     |
| BASSWOOD PEAK                     | 5150      | 3/30           | 13                  | 4.1                    | 7.3                    | 11.2    |
| BEAGLE SPRINGS                    | 8850      | 3/28           | 37                  | 8.6                    | 8.6                    | 9.5     |
| BEAGLE SPRINGS PILLOW             | 8850      | 4/01           | SP                  | 9.2                    | 9.0                    | 9.5     |
| BEAR BASIN                        | 8150      | 3/28           | 79                  | 23.0                   | 21.6                   | 22.3    |
| BEAR PAW SKI AREA                 | 5200      | 3/29           | 27                  | 8.4                    | 2.3                    | 7.7     |
| BEAVER LAKE                       | 9000      | 4/01           | 44                  | 14.0                   | 15.8                   | 24.8    |
| BERRY MEADOW                      | 7000      | 3/29           | 31                  | 8.0                    | 8.0                    | 8.3     |
| BIG CREEK                         | 6750      | 3/31           | 111                 | 42.0                   | 49.3                   | 47.2    |
| BIG SKY                           | 7700      | 3/30           | 61                  | 18.2                   | 15.6                   | 16.6    |
| BIG SKY MEADOW                    | 6750      | 3/28           | 41                  | 11.1                   | 10.2                   | 10.2    |
| BIG SNOWY                         | 7150      | 3/29           | 84                  | 28.8                   | 16.6                   | 23.1    |
| BLACK BEAR                        | 7050      | 3/26           | 107                 | 37.1                   | 48.4                   | 43.9    |
| BLACK BEAR PILLOW                 | 7050      | 4/01           | SP                  | 32.9                   | 42.1                   | 39.0    |
| BLACK MOUNTAIN                    | 7750      | 3/29           | 68                  | 15.6                   | 14.5                   | 16.7    |
| BLACK PINE                        | 7100      | 3/27           | 42                  | 10.4                   | 10.6                   | 14.7    |
| BLACK PINE PILLOW                 | 7100      | 4/01           | SP                  | 12.1                   | 11.0                   | 15.4    |
| BLOODY OCK                        | 7600      | 3/26           | 52                  | 12.0                   | 14.0                   | 14.4    |
| BLOODY OCK PILLOW                 | 7550      | 4/01           | SP                  | 11.6                   | 12.8                   | 12.9    |
| BLUE LAKE                         | 5900      | 4/01           | 47                  | 15.8A                  | 18.9                   | 27.0    |
| BOIS BOIS                         | 7750      | 3/27           | 41                  | 8.6                    | 8.3                    | 8.6     |
| BOULDER MOUNTAIN                  | 7950      | 3/26           | 66                  | 20.8                   | 19.0                   | 20.2    |
| BOULDER MOUNTAIN PILLOW           | 7950      | 4/01           | SP                  | 22.0                   | 22.8                   | 22.7    |
| BOX CANYON                        | 6670      | 3/26           | 28                  | 6.9                    | 9.0                    | 13.2    |
| BOX CANYON PILLOW                 | 6700      | 4/01           | SP                  | 4.3                    | 7.1                    | 11.2    |
| BRAHMAN LAKES                     | 8850      | 3/30           | 104                 | 32.6                   | 33.2                   | 31.5    |
| BRIDGER BUTTE                     | 7250      | 3/29           | 87                  | 27.1                   | 22.5                   | 29.2    |
| BRIDGER BUTTE PILLOW              | 7250      | 3/29           | SP                  | 27.2                   | 22.1                   | 27.7    |
| BRISTOW CREEK                     | 3900      | 3/30           | 0                   | 4.0                    | 5.7                    | 11.4    |
| BRUSH CREEK TIMBER                | 5000      | 3/28           | 18                  | 5.0                    | 8.8                    | 10.3    |
| BULL MOUNTAIN                     | 6600      | 3/30           | 24                  | 6.1                    | 6.4                    | 6.5     |
| CABIN CREEK                       | 5200      | 3/31           | 3                   | 9.9                    | 2.4                    | 7.0     |
| CALL ROAD                         | 8050      | 3/27           | 51                  | 13.3                   | 14.6                   | 13.0    |
| CALVERT CREEK                     | 6430      | 3/28           | 37                  | 9.1                    | 11.8                   | 12.2    |

| SNOW April 1, 1984                |           |                |                     |                        |                        |         |
|-----------------------------------|-----------|----------------|---------------------|------------------------|------------------------|---------|
| DRAINAGE BASIN and/or SNOW COURSE |           |                |                     |                        |                        |         |
| NAME                              | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) | Average |
|                                   |           |                |                     | THIS YEAR              | PAST RECORD            |         |
| CALVERT CREEK PILLOW              | 6430      | 4/01           | SP                  | 6.7                    | 8.9                    | 9.3     |
| CAMP MISERY                       | 6400      | 3/29           | 141                 | 53.5                   | 49.4                   | 50.0    |
| CAMP SENIA                        | 7890      | 3/27           | 35                  | 7.2                    | 7.4                    | 7.4     |
| CARROT BASIN                      | 9000      | 3/29           | 93                  | 32.2                   | 37.1                   | 38.6    |
| CARROT BASIN PILLOW               | 9000      | 4/01           | SP                  | 27.3                   | 31.3                   | 29.9    |
| CARTER CREEK                      | 7400      | 4/01           | 36                  | 8.6                    | 7.8                    | 6.1     |
| CASHE CREEK                       | 7800      | 4/02           | 38                  | 11.2                   |                        |         |
| CASHE CREEK PILLOW                | 7800      | 4/01           | SP                  | 9.1                    | 10.0                   | 9.3     |
| CEGAR GROVE                       | 3760      | 3/30           | 0                   | 0                      | 9.4                    | 13.2    |
| CHESSMAN RESERVOIR                | 6200      | 3/26           | 15                  | 3.4                    | 3.4                    | 3.9     |
| CHICKEN CREEK                     | 4060      | 3/27           | 31                  | 10.0                   | 11.1                   | 15.5    |
| CLOVER MEADOW                     | 8600      | 3/28           | 67                  | 18.9                   | 20.0                   | 19.1    |
| CLOVER MEADOW PILLOW              | 8600      | 4/01           | SP                  | 20.3                   | 13.1                   | 17.9    |
| COLE CREEK                        | 7850      | 3/29           | 60                  | 17.6                   | 20.6                   | 18.9    |
| COLE CREEK PILLOW                 | 7850      | 4/01           | SP                  | 18.0                   | 18.1                   | 17.6    |
| COLLEY CREEK                      | 6300      | 3/29           | 27                  | 6.4                    | 5.8                    | 9.4     |
| COMBINATION                       | 5600      | 3/27           | 20                  | 5.4                    | 4.8                    | 6.6     |
| COMBINATION PILLOW                | 5600      | 4/01           | SP                  | 4.9                    | 4.5                    | 6.6     |
| COKE STATION                      | 8150      | 3/28           | 51                  | 14.8                   | 17.4                   | 21.0    |
| COPPER BOTTOM                     | 5200      | 3/31           | 19                  | 6.6                    | 5.4                    | 11.4    |
| COPPER BOTTOM PILLOW              | 5200      | 4/01           | SP                  | 8.1                    | 6.5                    | 13.1    |
| COPPER CAMP                       | 6950      | 3/31           | 58                  | 19.1                   | 24.5                   | 32.8    |
| COPPER CAMP PILLOW                | 6950      | 4/01           | SP                  | 19.5                   | 23.5                   | 19.3    |
| COPPER CREEK                      | 5700      | 3/31           | 25                  | 8.5                    | 10.9                   | 15.5    |
| COPPER LAKE CREEK                 | 6100      | 3/31           | 45                  | 14.4                   | 20.7                   | 25.2    |
| COPPER MOUNTAIN                   | 7700      | 3/29           | 44                  | 11.4                   | 11.2                   | 12.7    |
| COYOTE HILL                       | 4200      | 3/29           | 16                  | 5.0                    | 5.2                    | 10.4    |
| CREVIER MOUNTAIN                  | 8400      | 3/27           | 38                  | 9.3                    | 9.0                    | 11.5    |
| CRYSTAL LAKE                      | 6050      | 3/29           | 60                  | 19.0                   | 9.4                    | 15.1    |
| CRYSTAL LAKE PILLOW               | 6050      | 4/01           | SP                  | 17.8                   | 10.2                   | 14.3    |
| DAD CREEK LAKE                    | 8400      | 3/28           | 58                  | 14.9                   | 13.6                   | 15.4    |
| DAISY PEAK                        | 7600      | 3/30           | 33                  | 8.4                    | 9.2                    | 12.2    |
| DALY CREEK                        | 5780      | 3/27           | 42                  | 10.9                   | 10.6                   | 12.7    |
| DALY CREEK PILLOW                 | 5780      | 4/01           | SP                  | 9.4                    | 13.8                   | 14.4    |
| DARKHORSE LAKE                    | 8600      | 3/27           | 85                  | 25.7                   | 24.6                   | 28.0    |
| DARKHORSE LAKE PILLOW             | 8700      | 4/01           | SP                  | 24.6                   | 19.4                   | 25.2    |
| DAVIS CREEK                       | 5400      | 3/30           | 45                  | 15.0                   | 26.8                   | 26.2    |
| DEADMAN CREEK                     | 6450      | 3/28           | 36                  | 10.6                   | 9.4                    | 12.7    |
| DEADMAN CREEK PILLOW              | 6450      | 4/01           | SP                  | 9.6                    | 6.2                    | 11.4    |
| DESERI MOUNTAIN                   | 5600      | 3/29           | 39                  | 12.5                   | 12.2                   | 16.6    |
| DEVELI SLIDE                      | 8100      | 3/26           | 77                  | 23.0                   | 21.8                   | 23.7    |
| DISCOVERY BASIN                   | 7050      | 3/27           | 50                  | 11.7                   | 9.0                    | 11.1    |
| DIVIDE                            | 7800      | 3/28           | 49                  | 12.5                   | 15.5                   | 12.0    |
| DIVIDE PILLOW                     | 7800      | 4/01           | SP                  | 12.4                   | 14.5                   | 12.9    |
| DIX HILL                          | 6400      | 4/01           | 37                  | 11.5                   | 7.3                    | 11.4    |
| DUPUYER CREEK PILLOW              | 5750      | 4/01           | SP                  | 5.2                    |                        |         |
| EAGLE CREEK                       | 7000      | 3/29           | 49                  | 14.2                   | 11.4                   | 15.5    |
| FAST BOULDER S                    | 9250      | 3/26           | 77                  | 23.0A                  | 26.5                   | 32.8    |
| FAST FORK R.S.                    | 5400      | 3/26           | 15                  | 4.4                    | 2.6                    | 6.9     |
| FLORADO MINE                      | 7800      | 3/26           | 70                  | 19.2                   | 19.8                   | 22.8    |
| FLK HORN SPRINGS                  | 7800      | 3/27           | 34                  | 7.5                    | 9.0                    | 9.9     |
| FLK PEAK                          | 8000      | 3/27           | 55                  | 16.7                   | 14.3                   | 18.1    |
| EMERY CREEK                       | 4350      | 3/29           | 33                  | 12.0                   | 12.4                   | 16.1    |
| EMERY CREEK PILLOW                | 4350      | 4/01           | SP                  | 11.6                   | 16.8                   | 16.5    |
| FATY CREEK                        | 5500      | 3/31           | 62                  | 22.0                   | 25.7                   | 25.0    |
| FISH CREEK                        | 8000      | 3/29           | 46                  | 9.4                    | 14.5                   | 10.2    |
| FISHP CREEK                       | 9100      | 3/28           | 83                  | 29.3                   | 31.9                   | 31.9    |
| FISHER CREEK PILLOW               | 9100      | 4/01           | SP                  | 26.7                   | 28.5                   | 38.0    |
| FIVE-BULL                         | 5700      | 3/31           | 0                   | 0                      | 3.9                    | 7.2     |
| FLATTOP MOUNTAIN PILLOW           | 6300      | 4/01           | SP                  | 33.6                   | 45.6                   | 49.7    |
| FLEECER RIDGE                     | 7500      | 3/30           | 36                  | 8.4                    | 12.1                   | 12.0    |

| SNOW April 1, 1984                |           |                |                     |                        |                        |         |
|-----------------------------------|-----------|----------------|---------------------|------------------------|------------------------|---------|
| DRAINAGE BASIN and/or SNOW COURSE |           |                |                     |                        |                        |         |
| NAME                              | Elevation | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) | Average |
|                                   |           |                |                     | THIS YEAR              | PAST RECORD            |         |
| FOOLHEN                           | 8280      | 3/27           | 49                  | 13.7                   | 17.4                   | 18.3    |
| FOREST LAKE                       | 6400      | 3/29           | 40                  | 10.3                   | 9.8                    | 13.7    |
| FOUR MILE                         | 6900      | 3/29           | 35                  | 9.0                    | 10.9                   | 9.4     |
| FOURTH OF JULY                    | 3450      | 3/26           | 14                  | 3.6                    | 4.8                    | 9.2     |
| FREEBUR PASS                      | 8000      | 4/01           | 76                  | 25.4                   | 24.5                   | 26.7    |
| FREIGHT CREEK                     | 6000      | 4/01           | 29                  | 8.7                    | 10.1                   | 16.7    |
| FRIDAY HILL                       | 4620      | 3/26           | 40                  | 13.0                   | 22.4                   | 24.5    |
| FRONHER MEADOWS                   | 6480      | 3/26           | 26                  | 6.8                    | 6.8                    | 8.0     |
| FRONHER MEADOWS PILLOW            | 6480      | 4/01           | SP                  | 8.3                    | 7.3                    | 8.8     |
| GARVER CREEK                      | 4250      | 3/30           | 17                  | 5.3                    | 11.2                   | 11.3    |
| GARVER CREEK RILL                 | 4250      | 4/01           | SP                  | 4.2                    | 10.6                   | 10.2    |
| GARVONS PASS                      | 7100      | 3/26           | 73                  | 22.3                   | 24.8                   | 24.7    |
| GREAT MOUNTAIN                    | 7000      | 4/01           | 19                  | 5.3                    | 6.3                    | 11.5    |
| GOLD CREEK LAKE                   | 7200      | 3/26           | 56                  | 15.5                   | 14.4                   | 17.0    |
| GOLD STONE                        | 8100      | 3/26           | 63                  | 16.6                   | 18.0                   | 18.2    |
| GRASSHOPPER                       | 7000      | 3/27           | 21                  | 6.2                    | 5.8                    | 6.4     |
| GRAVE CREEK                       | 4300      | 3/30           | 33                  | 11.8                   | 14.8                   | 18.3    |
| GRAVE CREEK PILLOW                | 4300      | 4/01           | SP                  | 11.6                   | 16.6                   | 17.1    |
| GRIFFIN CREEK DIVIDE              | 5150      | 3/30           | 24                  | 7.6                    | 10.0                   | 12.1    |
| GUNSLIGHT LAKE                    | 6300      | 4/01           | 83                  | 31.9                   | 32.2                   | 41.6    |
| HAUD CREEK                        | 5030      | 3/28           | 32                  | 9.2                    | 11.8                   | 15.0    |
| HAUD CREEK PILLOW                 | 5030      | 4/01           | SP                  | 8.2                    | 8.1                    | 16.0    |
| HAWKINS LAKE                      | 6450      | 3/30           | 58                  | 19.7                   | 32.1                   | 33.5    |
| HAWKINS LAKE RILL                 | 6450      | 4/01           | SP                  | 16.2                   | 28.1                   | 30.9    |
| HEART LAKE TRAIL                  | 4800      | 4/02           | 40                  | 15.8                   | 15.4                   | 23.0    |
| HEBGEN DAM                        | 6550      | 3/29           | 46                  | 13.0                   | 15.5                   | 12.5    |
| HELL ROARING DIVIDE               | 5770      | 3/30           | 71                  | 24.0                   | 29.3                   | 33.1    |
| HERRIG JUNCTION                   | 4850      | 3/27           | 54                  | 18.0                   | 25.1                   | 28.6    |
| HOLBROOK                          | 4510      | 3/29           | 14                  | 4.2A                   | 4.8                    | 10.2    |
| HOOD MEADOW                       | 6600      | 3/26           | 37                  | 10.3                   | 8.9                    | 10.0    |
| HOODS BASIN                       | 6050      | 4/02           | 101                 | 39.3                   | 46.2                   | 52.7    |
| HOODS BASIN PILLOW                | 6050      | 4/01           | SP                  | 34.7                   | 41.9                   | 47.1    |
| HOODS CREEK                       | 5900      | 4/02           | 94                  | 36.2                   | 41.4                   | 49.2    |
| HOODS CREEK PILLOW                | 5900      | 3/26           | 45                  | 13.2                   | 15.7                   | 19.6    |
| HOODS CREEK PILLOW                | 6450      | 3/30           | 29                  | 7.5                    | 6.4                    | 9.5     |
| INTERGAARD                        | 7200      | 3/26           | 40                  | 8.8                    | 10.8                   | 10.2    |
| JAHNKE LAKE TRAIL                 | 6450      | 3/30           | 16                  | 5.1                    | 4.8                    | 7.7     |
| JOHNSON PARK                      | 3300      | 3/30           | 0                   | 0                      | 6.6                    | 11.3    |
| KEELER CREEK                      | 7500      | 3/29           | 49                  | 13.6                   | 10.8                   | 15.2    |
| KINGS HILL                        | 3890      | 3/31           | 8                   | 1.4                    | 5.1                    | 7.8     |
| KISHENEH                          | 3770      | 3/29           | 0                   | 0                      | 0                      | 1.2     |
| KRAFT CREEK PILLOW                | 4750      | 4/01           | SP                  | 9.7                    | 9.8                    | 12.4    |
| LAKE CREEK                        | 6100      | 3/28           | 34                  | 9.5                    | 10.5                   | 9.2     |
| LAKEVIEW CANYON                   | 6930      | 3/30           | 36                  | 8.6                    | 20.2                   | 13.2    |
| LAKEVIEW RIDGE                    | 7400      | 3/30           | 34                  | 8.1                    | 19.2                   | 11.6    |
| LAKEVIEW RIDGE PILLOW             | 7400      | 4/01           | SP                  | 11.2                   | 22.0                   | 13.1    |
| LEMHI PASS                        | 7480      | 3/29           | 42                  | 9.2                    | 7.8                    | 9.6     |
| LEMHI RIDGE                       | 8100      | 3/29           | 48                  | 11.0                   | 9.3                    | 11.0    |
| LEMHI RIDGE PILLOW                | 8100      | 4/01           | SP                  | 12.3                   | 9.1                    | 11.4    |
| LICK CREEK                        | 6860      | 3/27           | 48                  | 11.9                   | 9.2                    | 11.0    |
| LICK CREEK PILLOW                 | 6860      | 4/01           | SP                  | 11.0                   | 9.5                    | 10.1    |
| LITTLE PARK                       | 7400      | 3/28           | 63                  | 17.0                   | 16.1                   | 17.2    |
| LOGAN CREEK                       | 4300      | 3/28           | 15                  | 3.6                    | 5.2                    | 7.7     |
| LONE MOUNTAIN                     | 8880      | 3/30           | 77                  | 23.4                   | 25.8                   | 23.9    |
| LOST HORSE                        | 5940      | 3/29           | 79                  | 27.2                   | 28.8                   | 34.4    |

| SNOW April 1, 1984                |           | THIS YEAR      |                     |                        | PAST RECORD            |         |
|-----------------------------------|-----------|----------------|---------------------|------------------------|------------------------|---------|
| DRAINAGE BASIN and/or SNOW COURSE |           | Date of Survey | Snow Depth (Inches) | Water Content (Inches) | Water Content (Inches) |         |
| NAME                              | Elevation |                |                     |                        | Last Year              | Average |
| LOSI SOUL                         | 4800      | 3/30           | 24                  | 8.0                    | 15.0                   | 16.0    |
| LOWER TWIN                        | 7900      | 3/29           | 72                  | 22.4                   | 25.1                   | 22.8    |
| LOWER TWIN PILLOW                 | 7900      | 4/01           | SP                  | 20.3                   | 24.4                   | 21.3    |
| LUBRECHT FLUME                    | 4680      | 3/30           | 0                   | .0                     | .0                     | 4.2     |
| LUBRECHT FLUME PILLOW             | 4680      | 4/01           | SR                  | .0                     | 1.0                    | 5.5     |
| LUBRECHT FOREST # 3               | 5450      | 3/30           | 16                  | 4.8                    | 4.9                    | 7.5     |
| LUBRECHT FOREST # 4               | 4650      | 3/30           | 0                   | .0                     | .0                     | 2.6     |
| LUBRECHT FOREST # 6               | 4040      | 3/30           | 0                   | .0                     | .4                     | 2.2     |
| LUBRECHT HYDROPLLOT               | 4200      | 3/30           | 0                   | .0                     | .0                     | 5.9     |
| MADISON PLATEAU                   | 7750      | 3/26           | 66                  | 20.0                   | 27.3                   | 24.5    |
| MADISON PLATEAU PILLOW            | 7750      | 3/26           | SR                  | 18.0                   | 26.9                   | 25.2    |
| MANY GLACIER                      | 4900      | 4/01           | 37                  | 13.2                   | 18.5                   | 21.7    |
| MANY GLACIER PILLOW               | 4900      | 4/01           | SP                  | 12.1                   | 15.6                   | 19.3    |
| MARIAS PASS                       | 5250      | 3/30           | 32                  | 11.4                   | 16.4                   | 18.5    |
| MAYNARD CREEK                     | 6210      | 3/29           | 53                  | 15.3                   | 12.7                   | 16.9    |
| MAYNARD CREEK PILLOW              | 6210      | 3/29           | SP                  | 12.2                   | 10.4                   | 13.3    |
| MIDDLE MILL CREEK                 | 7850      | 3/30           | 70                  | 19.7                   | 21.5                   | 17.8    |
| MILL CREEK                        | 7500      | 3/29           | 44                  | 12.0                   | 9.0                    | 14.5    |
| MINERAL CREEK                     | 4000      | 3/29           | 35                  | 11.8                   | 15.4                   | 18.8    |
| MONUMENT PEAK                     | 8850      | 3/26           | 64                  | 19.4                   | 23.4                   | 28.2    |
| MONUMENT PEAK PILLOW              | 8850      | 4/01           | SP                  | 16.7                   | 17.0                   | 24.3    |
| MOULTON RESERVOIR                 | 6850      | 3/30           | 36                  | 8.8                    | 7.1                    | 7.0     |
| MOUNT LOCKHART                    | 6400      | 3/27           | 46                  | 14.2                   | 18.4                   | 24.4    |
| MOUNT LOCKHART PILLOW             | 6400      | 4/01           | SP                  | 12.1                   | 16.3                   | 23.1    |
| MUDD LAKE                         | 7650      | 3/28           | 59                  | 16.0                   | 21.9                   | 21.5    |
| MULE CREEK                        | 8300      | 3/27           | 46                  | 12.0                   | 14.5                   | 16.0    |
| MULE CREEK PILLOW                 | 8350      | 4/01           | SP                  | 12.7                   | 13.3                   | 15.6    |
| NEVADA CREEK                      | 6480      | 3/31           | 40                  | 10.6                   | 12.8                   | 15.0    |
| NEVADA CREEK PILLOW               | 6480      | 4/01           | SR                  | 7.8                    | 11.6                   | 14.3    |
| NEW WORLD                         | 6900      | 3/29           | 57                  | 16.7                   | 14.0                   | 16.5    |
| NEWTON MOUNTAIN                   | 5600      | 3/26           | 73                  | 22.5                   | 39.2                   | 39.2    |
| NEZ PERCE CAMP                    | 5650      | 3/28           | 42                  | 13.6                   | 12.8                   | 15.9    |
| NEZ PERCE CAMP PILLOW             | 5650      | 4/01           | SP                  | 13.7                   | 13.0                   | 15.9    |
| NEZ PERCE CREEK                   | 6500      | 3/29           | 32                  | 7.8                    | 6.4                    | 7.4     |
| NEZ PERCE PASS                    | 6570      | 3/28           | 54                  | 17.0                   | 13.7                   | 18.3    |
| NOISY BASIN                       | 6040      | 3/29           | 135                 | 50.1                   | 47.3                   | 46.6    |
| NOISY BASIN PILLOW                | 6040      | 4/01           | SP                  | 45.9                   | 43.7                   | 40.5    |
| NORTH FK ELK CREEK                | 6250      | 4/02           | 37                  | 9.6                    | 11.4                   | 13.2    |
| NORTH FK ELK CREEK PILLOW         | 6250      | 4/01           | SP                  | 10.0                   | 11.1                   | 13.1    |
| NORTH FORK JOCKO                  | 6300      | 3/31           | 104                 | 39.3                   | 39.7                   | 47.6    |
| NORTH MEADOW                      | 7500      | 3/29           | 38                  | 9.6                    | 11.2                   | 9.3     |
| NORTHEAST ENTRANCE                | 7350      | 3/31           | 25                  | 6.5                    | 8.4                    | 10.1    |
| NORTHEAST ENTRANCE PILLOW         | 7350      | 4/01           | SP                  | 7.3                    | 8.5                    | 10.0    |
| NOTCH                             | 8500      | 3/28           | 83                  | 20.8                   | 22.6                   | 17.2    |
| OPHIR PARK                        | 7150      | 4/01           | 59                  | 17.9                   | 15.6                   | 18.5    |
| PALISADE CREEK                    | 8250      | 3/27           | 82                  | 24.4                   | 30.0                   | 31.0    |
| PETERSON MEADOWS                  | 7200      | 4/03           | 42                  | 11.6                   | 9.3                    | 11.2    |
| PETERSON MEADOWS PILLOW           | 7200      | 4/01           | SP                  | 11.1                   | 9.7                    | 11.6    |
| PICKET PIN D                      | 9450      | 3/26           | 76                  | 23.0A                  | 22.0                   | 27.5    |
| PICKET PIN LOWER                  | 6200      | 3/28           | 18                  | 5.4                    | 3.4                    | 2.4     |
| PICKET PIN MIDDLE                 | 7250      | 3/24           | 38                  | 11.2                   | 7.2                    | 14.1    |
| PICKET PIN UPPER                  | 8100      | 3/28           | 63                  | 19.2                   | 19.4                   | 22.2    |
| PICKFOOT CREEK                    | 6650      | 3/26           | 32                  | 9.5                    | 9.7                    | 12.1    |
| PICKFOOT CREEK PILLOW             | 6650      | 4/01           | SP                  | 9.7                    | 13.1                   | 13.2    |
| PIKE CREEK                        | 5930      | 3/26           | 49                  | 15.6                   | 22.2                   | 28.7    |
| PIKE CREEK PILLOW                 | 5930      | 4/01           | SP                  | 17.4                   | 24.0                   | 30.1    |
| PIPESTONE PASS                    | 7200      | 3/29           | 22                  | 5.0                    | 6.2                    | 6.1     |
| PLACER BASIN F                    | 8830      | 3/26           | 60                  | 18.0A                  | 19.0                   | 22.4    |
| PLACER BASIN PILLOW               | 8830      | 4/01           | SR                  | 15.6                   | 14.5                   | 17.9    |
| POORMAN CREEK                     | 5100      | 3/30           | 65                  | 24.2                   | 34.5                   | 36.9    |
| POORMAN CREEK PILLOW              | 5100      | 4/01           | SR                  | 21.4                   | 27.9                   | 33.8    |



# Columbia River Drainage

## STREAMFLOW FORECASTS

| BASIN, STREAM, or FORECAST POINT                    | THIS YEAR         |         |                    |                    | LAST YEAR    |         |                    |                    | BEST RECORD  |         |                    |                    | THIS YEAR    |         |                    |                    | BEST RECORD  |         |                    |                    |
|---|-------------------|---------|--------------------|--------------------|--------------|---------|--------------------|--------------------|--------------|---------|--------------------|--------------------|--------------|---------|--------------------|--------------------|--------------|---------|--------------------|--------------------|
|   | FORECAST          | PERCENT | THOUSAND ACRE FEET | THOUSAND ACRE FEET | FORECAST     | PERCENT | THOUSAND ACRE FEET | THOUSAND ACRE FEET | FORECAST     | PERCENT | THOUSAND ACRE FEET | THOUSAND ACRE FEET | FORECAST     | PERCENT | THOUSAND ACRE FEET | THOUSAND ACRE FEET | FORECAST     | PERCENT | THOUSAND ACRE FEET | THOUSAND ACRE FEET |
| PERIOD  | April - September |         |                    |                    | April - July |         |                    |                    | April - June |         |                    |                    | April - June |         |                    |                    | April - June |         |                    |                    |
| KOOTENAI RIVER below Libby Dam (1)                  | 5,310             | 75      | 6,356              | 7,041              | 4,540        | 75      | 5,346              | 6,020              |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| FISHER RIVER near Libby                             | 135               | 51      |                    | 264                | 125          | 50      |                    | 248                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| YAK RIVER near Troy                                 | 275               | 53      |                    | 523                | 260          | 52      |                    | 500                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| KOOTENAI RIVER at Leona (1)                         | 6,260             | 73      | 7,948              | 8,602              | 5,460        | 73      | 6,857              | 7,498              | 4420         | 73      | 5,157              | 6,051              |              |         |                    |                    |              |         |                    |                    |
| INFLOW HOULTON RESERVOIR at BUTTE (Million Gallons) |                   |         |                    |                    | 210          | 80      | 182                | 263                | 192          | 81      | 179                | 237                |              |         |                    |                    |              |         |                    |                    |
| WARM SPRINGS CREEK AT MEYERS DAM near Anaconda (2)  | 41.5              | 89      |                    | 46.8               | 33.3         | 88      |                    | 37.8               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| FLINT CREEK near Southern Cross (3)                 | 14.8              | 81      | 18.9               | 18.3               | 12.5         | 81      | 15.2               | 15.4               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| FLINT CREEK below Boulder Creek (4)                 | 60.5              | 80      |                    | 75.8               | 47.5         | 80      |                    | 59.5               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)   | 11.0              | 70      | 11.6               | 15.7               | 10.2         | 68      | 10.2               | 14.9               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| MIDDLE FORK ROCK CREEK near Phillipsburg            | 64.0              | 82      |                    | 78.2               | 58.0         | 82      |                    | 70.5               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| NEVADA CREEK near Finn                              | 14.0              | 61      |                    | 23.0               | 12.8         | 60      |                    | 21.3               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| BLACKFOOT RIVER near Bonner                         | 710               | 71      |                    | 999                | 625          | 69      |                    | 904                | 540          | 69      |                    | 782                |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER above Milltown (6)                 | 700               | 86      |                    | 816                | 610          | 86      |                    | 708                | 520          | 87      |                    | 597                |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER above Missoula                     | 1,410             | 78      | 1,362              | 1,815              | 1,235        | 77      | 1,133              | 1,612              | 1060         | 77      | 880                | 1,379              |              |         |                    |                    |              |         |                    |                    |
| WEST FORK BITTERROOT RIVER near Conner (7)          | 132               | 74      |                    | 178                | 120          | 73      |                    | 164                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| BITTERROOT RIVER near Darby                         | 410               | 71      |                    | 580                | 375          | 70      |                    | 532                | 330          | 71      |                    | 464                |              |         |                    |                    |              |         |                    |                    |
| SKALKAGO CREEK near Hamilton                        | 48.3              | 86      |                    | 56.0               | 42.0         | 86      |                    | 48.7               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| HURNT FORK CREEK near Stevensville (8)              | 31.5              | 84      |                    | 37.4               | 27.0         | 84      |                    | 32.2               |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| BITTERROOT RIVER at Missoula (9)                    | 1,040             | 69      |                    | 1,504              | 955          | 69      |                    | 1,384              | 835          | 70      |                    | 1,191              |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER below Missoula                     | 2,450             | 74      |                    | 3,319              | 2,190        | 73      |                    | 2,996              | 1,895        | 74      |                    | 2,570              |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER at St. Regis                       | 3,290             | 75      | 3,450              | 4,411              | 2,970        | 75      | 3,073              | 3,928              | 2,570        | 75      | 2,437              | 3,428              |              |         |                    |                    |              |         |                    |                    |
| NORTH FORK FLATHEAD RIVER near Columbia Falls       | 1,400             | 73      |                    | 1,913              | 1,240        | 72      |                    | 1,732              | 1,050        | 71      |                    | 1,471              |              |         |                    |                    |              |         |                    |                    |
| MIDDLE FORK FLATHEAD RIVER near West Glacier        | 1,360             | 73      |                    | 1,869              | 1,240        | 72      |                    | 1,401              | 1,713        | 72      |                    | 1,122              | 1,453        |         |                    |                    |              |         |                    |                    |
| SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)  | 1,700             | 75      |                    | 1,847              | 2,278        | 74      |                    | 1,715              | 2,142        | 74      |                    | 1,416              | 1,886        |         |                    |                    |              |         |                    |                    |
| FLATHEAD RIVER at Columbia Falls (10)               | 4,270             | 74      | 4,943              | 6,208              | 4,220        | 74      | 4,508              | 5,721              | 3,670        | 75      | 3,654              | 4,921              |              |         |                    |                    |              |         |                    |                    |
| SWAN RIVER near Big Fork                            | 585               | 85      |                    | 689                | 510          | 84      |                    | 604                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| FLATHEAD RIVER near Polson (11)                     | 5,400             | 74      | 6,130              | 7,278              | 4,950        | 74      | 5,538              | 6,712              | 4,300        | 75      | 4,420              | 5,759              |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER near Plains (11)                   | 8,470             | 70      | 9,880              | 12,153             | 7,720        | 70      | 8,748              | 11,071             | 6,620        | 70      | 6,902              | 9,459              |              |         |                    |                    |              |         |                    |                    |
| THOMPSON RIVER near Thompson Falls                  | 172               | 66      |                    | 261                | 150          | 64      |                    | 233                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| PROSPECT CREEK at Thompson Falls                    | 93.0              | 65      |                    | 142                | 86.0         | 65      |                    | 132                |              |         |                    |                    |              |         |                    |                    |              |         |                    |                    |
| CLARK FORK RIVER at Whitehorse Rapids (12)          | 9,320             | 69      |                    | 13,575             | 8,480        | 69      |                    | 12,351             | 7,290        | 69      |                    | 10,570             |              |         |                    |                    |              |         |                    |                    |

- (1) Adjusted for storage in Lake Kootenai.
- (2) Adjusted for storage in Silver Lake, diversions to end pumping from Georgetown Lake.
- (3) Adjusted for storage in Georgetown Lake, diversions from and pumping to Silver Lake.
- (4) Sum Flint Creek at Havillville and Boulder Creek at Havillville.
- (5) Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall.
- (6) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.
- (7) Adjusted for storage in Painted Rocks Reservoir.
- (8) Adjusted for diversion into Sunset Highway Canal.
- (9) Difference in observed flow Clark Fork above and below Missoula.
- (10) Adjusted for storage in Hungry Horse Reservoir.
- (11) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
- (12) Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Noxon Rapids Reservoir.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

## Below average snowpack continues

Snowpack showed good increases in the southern part of the drainage but remained well below average in the Kootenai River headwaters and Lower Clark Fork River drainage.

Even with this good snowfall, most areas still have below average snowpack. Only the Swan Range, Mission Mountains and an area along the Continental Divide near Butte have near to a little below average snowpack.

Low elevation snows are melting in the Kootenai, Flathead and Lower Clark Fork River drainages.

| SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS) |                            |                                      |         |
|---|----------------------------|--------------------------------------|---------|
| RIVER BASIN and SUB-DRAINAGE                                  | Number of Gauging Stations | THIS YEAR'S SNOW WATER AS PERCENT OF | Average |
| East Kootenai/BC.   | 26                         | 116                                  | 67      |
| Kootenai/Montana  | 30                         | 68                                   | 57      |
| Kootenai above Bonners Ferry...                               | 56                         | 82                                   | 61      |
| Little Bitterroot   | 9                          | 76                                   | 53      |
| N. Fk. Flathead...  | 13                         | 75                                   | 68      |
| M. Fk. Flathead...  | 13                         | 81                                   | 64      |
| S. Fk. Flathead...  | 13                         | 101                                  | 88      |
| Swan  | 11                         | 99                                   | 92      |
| Flathead  | 59                         | 89                                   | 77      |
| Stillwater & Whitefish.....                                   | 9                          | 79                                   | 63      |
| Clark Fork above Blackfoot.....                               | 43                         | 94                                   | 80      |
| Blackfoot   | 23                         | 92                                   | 67      |
| Upper Clark Fork above Missoula ..                            | 66                         | 93                                   | 75      |
| Bitterroot  | 22                         | 96                                   | 80      |
| Lower Clark Fork below Missoula ..                            | 19                         | 86                                   | 64      |
| Clark Fork (Total w/o Flathead)...                            | 107                        | 92                                   | 73      |
| Pend O'Reille (Clark Fork & Flathead) .....                   | 166                        | 91                                   | 75      |
| Columbia (Pend O'Reille & Kootenai) .....                     | 222                        | 89                                   | 71      |

| WATER SUPPLY OUTLOOK    |               |            |
|-------------------------|---------------|------------|
| STREAM or AREA          | Flow Period   |            |
|                         | Spring Season | Low Season |
| Tobacco .....           | Fair          | Poor       |
| Little Bitterroot.....  | Fair          | Poor       |
| Mission Valley .....    | Fair          | Fair       |
| Flint Creek .....       | Fair          | Fair       |
| Upper Clark Fork ....   | Fair          | Fair       |
| Nevada Creek .....      | Fair          | Fair       |
| Blackfoot .....         | Fair          | Poor       |
| West-side Bitterroot .. | Fair          | Fair       |
| East-side Bitterroot .. | Fair          | Fair       |
| Bitterroot River ....   | Fair          | Fair       |
| Lower Clark Fork ....   | Fair          | Poor       |

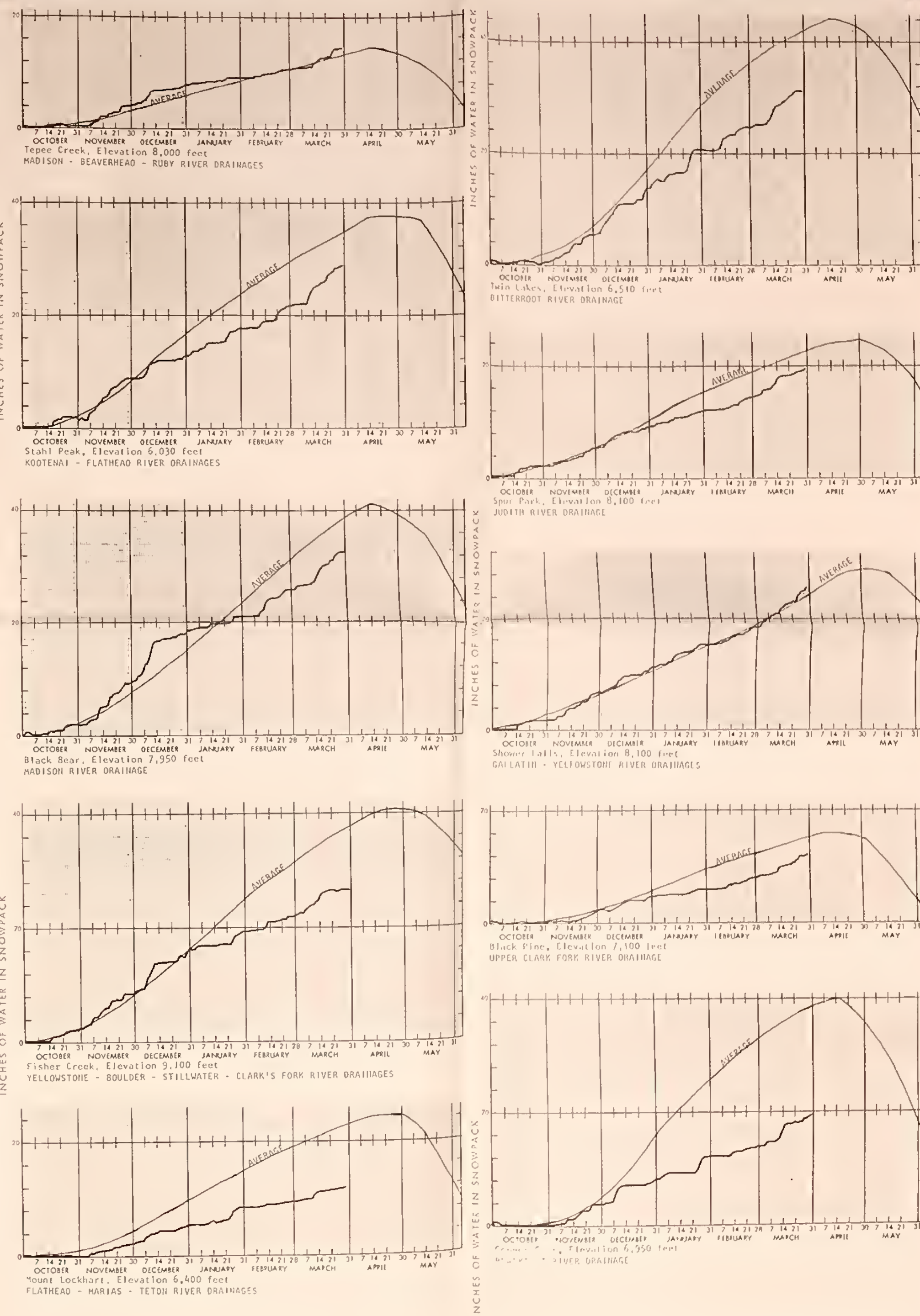
## Below average streamflow forecasts

Spring and summer runoff forecasts have increased in the Bitterroot, Upper Clark Fork and Blackfoot River drainages. Forecasts have remained about the same as last month in the Flathead River and have decreased for the smaller streams flowing into the Lower Clark Fork and Kootenai Rivers.

Streamflows are expected to be below average in all drainages and very low on smaller streams in the northwest corner.

Some shortages of irrigation water are expected on all streams not having stored water. Streamflows will begin dropping sooner than usual and shortages of irrigation supplies will probably begin to develop earlier than normal.

# SNOW PILLOW DATA



CARRYOVER STORAGE FROM LAST YEAR'S GOOD RUNOFF, COMBINED WITH WINTER AND SPRING RUNOFF WILL ENABLE MOST RESERVOIRS IN THE STATE TO FILL THIS YEAR. THIS STORED WATER IS EXTREMELY VALUABLE IN WATER SHORT YEARS SUCH AS THIS ONE.



SATELLITE SNOW COVER



MISSOURI RIVER BASIN  
Above  
Canyon Ferry Dam

| DATE              | PERCENT<br>SNOW COVER | AVERAGE<br>SNOWLINE<br>ELEVATION<br>IN FEET |
|-------------------|-----------------------|---|
| November 29, 1983 | 99.1                  | 3940  |
| December 20, 1983 | 100                   | 3800  |
| January 9, 1984   | 72                    | 5720  |
| January 31, 1984  | 78                    | 5440  |
| February 8, 1984  | 74                    | 5630  |
| February 27, 1984 | 100                   | 3800  |
| April 3, 1984     | 74                    | 5630  |



AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES

Canada

- Department of the Environment
- Atmospheric Environment Service
- Water Management Service
- British Columbia Ministry of Environment
- Inventory and Engineering Branch, Hydrology Section
- Alberta Environment
- Technical Services Division

Federal

- Department of the Army - Corps of Engineers
- Department of Agriculture - Forest Service

RESERVOIR ST

Kootenai  
Flathead

Clark Fork

Bitterroot

Beaverhead

Ruby  
Madison

Gallatin  
Missouri

Smith

Musselshell

Sun

